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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,507	06/28/2007	Donald Cowling	06-726	2328
20306 7590 11/23/2009 MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP 300 S. WACKER DRIVE 32ND FLOOR CHICAGO, IL 60606				
EXAMINER				
HAGEMAN, MARK				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,507

Applicant(s)

COWLING ET AL.

Examiner

Mark Hageman

Art Unit

3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2009.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) 29 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-22 and 25-28 is/are rejected.
7) ☒ Claim(s) 23 and 24 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4-10-2007, 8-20-2009
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-28 in the reply filed on 9-28-2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the roller conveyor wherein at least one roller is driven and the tracking cameras must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 13 is objected to because of the following informalities: "on" in line 5 should be one. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 28 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While the ideas of adjusting the speed and duration of the air jets is readily understandable and apparent there is nothing in the disclosure to explain how direction of the air jets can be changed. No structures are identified that provide for this functionality.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 13, 15, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Claim 13 recites the limitation "the apparatus comprises first and second conveying means" in line 3. There is insufficient antecedent basis for this limitation in the claim. It is not clear if this further defining the initial conveying means recited in claim 11 or in addition to the initial conveying means. It is not clear whether two or three conveying means are required by the claim.
10. Claim 15, 17 and 18 all recite the limitation "said means" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-4, 7, 9-12, 14-20, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,313,422 to Anibas. Anibas discloses a separating device for removing objects from an object stream, the device comprising a two dimensional array of individually actuable air jet nozzles (10), a group of said nozzles being selectably actuated to remove a said object from the object stream (c3 lines 20+). Examiner contends that either array 10 can be considered a two dimensional array as although they are each a single line of nozzles the occupy space over both the width and length dimensions of the conveyor and thus are two dimensional. In order to preclude such interpretation each array would have to include more than one row of nozzles which are offset from one another. Examiner notes that the current claim language does not require such an arrangement.

Re claim 2 the separating device includes a controller responsive to object data identifying objects in said object stream to selectably actuate said group of nozzles corresponding to an object outline contained in said object data (c1 lines 55+ and c3 lines 20+).

Re claim 3 a conveyor (1) arranged to receive said object stream, the conveyor being permeable to a gas jet emitted by said array, the array being positioned such that said conveyor is interposed between said array and said object stream (c1 lines 55+).

Re claim 4 said conveyor comprises a meshed belt (c1 lines 55+).

Re claim 7 the nozzles are arranged in a substantially rectangular array of n rows by m columns (10). Examiner contends that relative to this claim each set of nozzles can be considered a row so there are two rows and however many columns as there are nozzles in each array.

Re claim 9 the nozzles are connected to a compressed air supply (c1 lines 60+).

Re claim 10 the controller is operable in response to data identifying an object in said stream to actuate nozzles in at least two columns (c1 lines 55+). See also discussion above regarding claim 7. Also Examiner notes that the controller is operable to open any or all of the nozzles.

Re claim 11 (a) conveying means for conveying input objects (1) input to the apparatus; (b) extracting means (10) for extracting from the conveying means input objects identified as belonging to a particular object-class and removing said identified

input objects to a remote location; and (c) processing means (c3 lines 20+ and c1 lines 55+) arranged to (i) receive input data corresponding at least to the positions across the conveying means of said identified input objects; and (ii) output control signals corresponding to the input data to the extraction means at an appropriate time to effect extraction of said identified input objects (c3 lines 20+); wherein the extraction means comprises an array of nozzles (10), extending in a direction (z) across the conveying means, each of which is independently operable under control of the processing means to produce an air jet in a generally upward direction (y), and is arranged to activate sub-groups of nozzles corresponding to, an in response to, said control signals (c3 lines 20+); characterised in that (d) the conveying means has a partially-open surface (c1 lines 55+)) arranged to convey input objects over the array of nozzles; (e) the array of nozzles is two-dimensional and also extends in a direction (see above re claim 7) substantially parallel to the direction of motion of the conveying means when the apparatus is in use; and (f) the input data further corresponds to the outline shape of said identified input objects (c3 lines 20+).

Re claim 12 the extraction means (10) comprises two or more two-dimensional arrays of nozzles, the conveying means being arranged to convey input objects over the two or more arrays and each array being arranged to extract from the conveying means input objects belonging to at least one of a plurality of object-classes in response to control signals from the processing means. See above regarding claim 7 and figure 1.

Re claim 14 comprising means (c1 lines 60+) arranged to identify input objects composed of a particular material and to pass corresponding data to the processing means.

Re claim 15 said means is also arranged to establish the positions of identified input objects across the conveying means and to pass corresponding data to the processing means (c1 lines 60+ and c3 lines 20+).

Re claim 16 wherein said corresponding data comprises a timestamp. Examiner contends that a time stamp is implied by the c3 lines 20+ as the information is used to later trigger the nozzles.

Re claim 17 said means is also arranged to establish the outline shapes of identified input objects and to pass corresponding data to the processing means (c3 lines 20+).

Re claim 18 said means comprises an imaging sensor (c1 lines 60+).

Re claim 19 one or more tracking cameras (2) arranged to track the position of input objects on the conveying means between the position at which the input objects are input to the apparatus and the position of the array nozzles, and to provide corresponding data to the processing means (c3 lines 20+).

Re claim 20 the conveying means is a meshed conveyor belt (c1 lines 50+).

Re claim 28 the extracting means may be adjusted to vary one or more of the speed, direction and duration of the air jets produced by the array of nozzles in response to control signals from the processing means. Examiner notes that Anibas device is readily capable of being operated at different pressures or keeping the nozzles open for differing periods of time which anticipates the claimed limitation.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 5, 6, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anibas in view of what is well known in the art. Anibas does not explicitly disclose a powered roller conveyor as set forth in claims 5 and 6 but such conveyors are well known and provide the same function of belt conveyors by transporting items. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to have used a powered roller conveyor in place of a belt conveyor as replacing one element with another well known element for the same predictable result is within the ordinary skill in the art. Furthermore relative to claims 21

and 22 it would be obvious to provide at least 60% open area in order to allow for proper ejection due to the nozzles and to make the conveying surfaces out of plastic, metal or PTFE-coated fibre-glass as each material is very common and used for their respective advantages of cost/weight, strength, and wear resistance respectively.

15. Claims 8 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anibas in view of US 5,350,118 to Mitchell. Anibas discloses all of the claim limitations except a plurality of nozzles are connected to a manifold, each nozzle has an independent supply of pressurised air, subgroups of nozzles are connected to respective manifolds each of which has an independent supply of pressurised air and each nozzle incorporates a valve and solenoid arranged to open and close the valve in response to control signals. Mitchell discloses a injector assembly including a plurality of nozzles are connected to a manifold (c1 lines 57+), each nozzle has an independent supply of pressurised air (48), subgroups of nozzles are connected to respective manifolds (36) each of which has an independent supply of pressurised air and each nozzle incorporates a valve and solenoid arranged to open and close the valve (40) in response to control signals in order to provide a compact nozzle array that allows a large number of nozzles for a given distance (c3 lines 40+).

It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to have used the nozzle assembly taught by Mitchell in order to

provide a compact nozzle array that allows a large number of nozzles for a given distance.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anibas in view of US 4,352,430 to Maier. Anibas discloses the extraction means comprises first and second two-dimensional arrays (10) of nozzles and conveying means having partially open surfaces arranged to convey input objects over the first and second arrays respectively, each array being arranged to extract from corresponding conveying means input objects belonging to at least one of a plurality of object-classes in response to control signals from the processing means but does disclose first and second conveying means. Maier discloses a sorting machine using two conveying systems (1, 101) so different backgrounds can be provided for capturing image data.

It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to have used the dual conveyor system, as taught by Maier, in order to provide different background for analysis.

Allowable Subject Matter

17. Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not anticipate or render obvious the specific configuration of the rows of nozzles set forth.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Hageman whose telephone number is (571) 272-3027. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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MCH